Facts about Noise

- **Noise is unwanted sound. Noise is perceived differently by every individual. A noise that is irritating to one person may be tolerable to another.**
- **Noise is measured in decibels on a logarithmic scale.**
- **An increase of 10 decibels will cause the noise to be perceived as sounding twice as loud to the average listener.**
- **The smallest change in noise level that can be detected by the human ear is about 3 decibels.**
- **Doubling the traffic volume on a highway will increase the noise level by 3 decibels.**
- **The noise level will decrease by about 3 to 4.5 decibels for each doubling of the distance from the source roadway. The amount of decrease depends on the absorptive characteristics of the ground.**
- **The Arizona Department of Transportation uses a noise level of 64 decibels as the criterion for considering noise barriers, which is lower than the 67 decibels specified in the federal regulations.**
- **Noise barriers can be noise walls, earth berms or a combination of walls and berms.**
- **Even with noise barriers, residents within 500 to 1,000 feet of the highway will likely be able to hear the traffic. Barriers are designed to reduce noise to an acceptable or tolerable level. They cannot completely eliminate noise.**
- **Noise barriers along a highway are most effective for homes within about 300 feet of the highway. Beyond that, noise barriers are less effective, but the natural decrease in noise with distance usually reduces noise levels to acceptable levels.**
- **Noise walls range in height from 8 to 20 feet, depending on what height is needed to reduce the noise to an acceptable level. Noise walls cost about $250 to $700 per linear foot, depending on the height.**
- **An earth berm (a large mound of packed dirt usually with landscaping) of a given height will provide slightly more noise reduction than a vertical barrier wall of the same height.**
- **In some cases, existing dense vegetation can reduce traffic noise levels. Vegetation that is a minimum of 100 feet in depth, at least 15 feet high and dense enough that you cannot see the highway through it, can reduce noise levels by approximately 5 decibels. Typical roadside landscaping does not affect noise levels.**
- **As a general rule-of-thumb, a noise barrier that is high enough to break the line of sight between the source (traffic) and the receiver (residents) reduces noise by approximately 5 decibels. Each additional foot of height added to the barrier reduces the noise level by another half decibel.**

ADOT

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